

Date: May 5, 2016

To: Thomas J. Bonfield, City Manager
Through: W. Bowman Ferguson, Deputy City Manager
From: Donald F. Greeley, Director, Water Management
Subject: Water Regulatory Compliance Engineering Design Services
Contract, Amendment No. 5, Black & Veatch International
Company.

Executive Summary

In 2008, the City contracted with the engineering firm of Black & Veatch International Company (B&V) to provide engineering design services for the Water Treatment Regulatory Compliance Improvement Project. During the course of design, a number of regulatory changes were implemented within State agencies which created a need for design changes. Additional hydraulic modeling of the City's water supply lakes, streams/rivers and Teer Quarry was required for the project's Environmental Assessment (EA). Due to the size of the project, a third party value engineering study was conducted to improve the overall design. In order to complete the work, B&V is required to provide additional engineering services. This amendment (Amendment #5) provides for additional fees for the Water Regulatory Compliance Project. Funds are available in the current Capital Improvement Program (CIP) fund.

Recommendation

The Department recommends that City Council:

1. Authorize the City Manager to negotiate and execute a contract amendment with Black & Veatch International Company for additional services related to the contract for additional costs not to exceed \$2,265,200.00;
2. Establish a contingency fund for the contract in the amount of \$250,000.00; and,
3. Authorize the City Manager or his designee to negotiate modifications to the contract provided that the total cost of all modifications together with the original contract does not exceed \$11,106,762.00.

Background

In 2008, City Council approved the selection of (B&V) to provide engineering services for the design, permitting and construction of the Water Regulatory Compliance Project. The project was developed to make essential improvements at the Brown and Williams Water Treatment Plants (WTPs) to enable compliance with the Stage 2 Disinfection Byproducts Rule, as well as other water treatment regulations.

Water treatment evaluations included:

- Water quality testing and treatability studies of raw water from Little River, Lake Michie and a blended sample
- Lead and Copper corrosion control studies
- Bench scale and pilot scale testing of alternative treatment alternatives

- Water age modeling analysis studies
- Treatability studies conducted on Teer Quarry raw water

In addition to addressing regulatory issues, the project also addresses a number of maintenance issues and includes the expansion of Brown WTP from 30 million gallons per day (MGD) to 42 MGD. Due to the complexity of the project, it is separated into several phases: Evaluation, Master Planning, Design, Permitting, Bidding and Construction Services. The scope of the construction project is estimated to be approximately \$50 million.

Amendment #1 was approved in 2009 and authorized the bidding phase services, construction phase services, and resident field representation for the preliminary phases of the work.

Amendment #2 was also approved in 2009 and amended the original design based on the Evaluation Study and Master Planning. The revised scope includes the Brown WTP expansion, upgraded chemical feed systems, the addition of SCADA capabilities at both WTPs and associated facilities, upgrading the original backwash system and filters, adding new ADA compliant administrative office and training facilities at the Brown WTP, updating as-built drawings and confirming surveys.

Amendment #3 was approved in 2013 and amended the scope of services for additional efforts required by the Environmental Assessment, value engineering study, and to compensate engineer for schedule delays in design and construction. Additionally, the amendment included a construction contract for the rehabilitation of Filters No. 1 - 4 at the Brown WTP which has been completed.

Amendment #4 was approved in 2015 and amended the scope of services for continued effort in obtaining an approved environmental assessment, effort associated with additional modeling demonstrating the effect of proposed water system strategies on the Falls Lake water quality.

Issues and Analysis

In order to complete construction of the project, additional construction phase services are needed. Additional construction phase services include;

- Coordination of the water plant shut downs while maintaining adequate water supply,
- Construction coordination with separate water plant projects;
 - Brown and Williams WTP - Residuals Treatment,
 - Williams WTP - Terminal Reservoir Solids Removal,
 - Williams WTP – Terminal Reservoir Apron Replacement,
 - Williams WTP – Emergency Generator Replacement
- Expansion of the original 24 month construction period to a 30 month construction duration,
- Construction at the two plants requires two (2) resident project representatives to be onsite,
- Salary inflation over the construction timeline.

The City is also requesting a contingency for miscellaneous construction services of \$250,000.00

Table #1 – Allocation of Fees

Additional Service	Current	Amendment	Revised Contract
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	Contract Amount	No. 5 Fee	Amount
	Column A	Column B	Column C
LUMP SUM SERVICES			
Evaluations	\$ 886,799.00		\$ 886,799.00
Design & Permitting	\$ 4,427,501.00		\$ 4,427,501.00
Bidding Phase Services	\$ 113,800.00	\$ 22,600.00	\$ 136,400.00
Construction Phase Services	\$ 1,824,700.00	\$ 1,456,500.00	\$ 3,281,200.00
Resident Field Representative	\$ 744,000.00	(\$ 744,000.00)	\$ 0.00
Post Construction Services	\$ 94,000.00	\$ 71,600.00	\$ 165,600.00
Other Services	\$ 462,836.00		\$ 462,836.00
Sub-Total All Tasks	\$ 8,553,636.00	\$ 806,700.00	\$ 9,360,336.00
Hourly Rates - Not to Exceed			
Construction Material Testing		\$ 200,000.00	\$ 200,000.00
Coordination with Water Residuals Project		\$ 100,000.00	\$ 100,000.00
Resident Field Representation		\$ 1,058,500.00	\$ 1,058,500.00
Warrantee Support Services (Post Construction)		\$ 100,000.00	\$ 100,000.00
Total – All Tasks	\$ 8,553,636.00	\$ 2,265,200.00	\$10,818,836.00

Contingency

In addition to the above services, a contingency for additional services that may be authorized by the City is herein established. This contingency may be used by the City to authorize additional services not contemplated in the forgoing table of fees.

Contingency: \$250,000.00

Total Potential Contract Amount: \$11,106,762.00

The Department has reviewed the additional services request and has determined the fees to be fair and reasonable. The Department recommends approving the amendment.

Alternatives

The only alternative identified is not to authorize the contract amendment with B&V. This would require City staff to perform a portion of the construction phase services. The City does not have the adequate staff to dedicate to this activity. It is in the City's best interest to have the Engineer complete the work.

Financial Impact

Funding for this contract was budgeted for in the following Accounts as part of the CIP. There are currently funds available in the accounts below:

Brown WTP Expansion	\$ 46,210.00	4100P002-731000-P0200
Water Reg. Compliance	\$ 85,850.60	4100P002-731000-P0B06
Water Facility Rehabilitation	\$ 2,133,139.40	4100P002-731000-P0B09
Water Facility Rehabilitation	\$ <u>250,000.00</u>	4100P002-731900-P0B09
	\$ 2,515,200.00	

SDBE Summary

This is a contract amendment. B&V will be using the following SDBE firms for construction services:

Firm	ID	City/State	Amount	% of Contract
Rohadfox	MBE	Durham, NC	\$ 275,410.00	0.025%